

INFORMATION: FAR 25.723 "Energy Absorption Tests"

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ACE-100, ANE-100, ASW-100, AWS-100

Several inquiries have been received relative to the limits of extrapolation of landing gear drop test data for changes in type design.

Prior to Amendment 46 to Part 25, there was inconsistency in the application of FAR 25.723(a) and deviation from the strict requirement for additional drop tests for increases in gross weight. Some certification programs allowed the weight increases to be verified by analysis based on previous testing even when the landing gear energy absorption characteristics were substantially modified by changes in the metering pin. These inconsistencies and deviations from the rule were considered in the Airworthiness Review Program, and FAR 25.723(a) was revised to allow some relief in the use of analyses for extrapolation of landing gear test results.

The rule, as revised by Amendment 25-46, allows increases in weight to be substantiated by analysis based on tests conducted on landing gear with identical energy absorption characteristics. No limits for weight increases are specified; however, changes in energy absorption characteristics in conjunction with the weight increases are not allowed without further drop test substantiation. The requirement for identical energy absorption characteristics will usually provide an inherent limit on the weight increase since large increases in weight may necessitate a revision to the metering pin or other energy absorption characteristics.

If the original drop tests provide a range of energy absorption characteristics and weights over which the analysis is shown to be valid, then further testing would not be required for modifications consistent with the validated range of the analysis.

Original Signed by
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